



COAL POLICY SUBMISSION

Submitted by Atrum Coal

Abstract

A new Coal Policy for Alberta is needed. Outlined are reasons to replace the original land Categories, suggestions that will simplify land categorization, and concepts which will increase the number of hectares of protected lands. Also summarized are approaches to modern mining that mitigate land reclamation worries, environmental concerns and water treatment.

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EXECUTIVE SUMMARY

The need for a new coal policy is certain.

The original 1976 Coal Development Policy is a planning document that recognized the importance of development and environmental protection. While it was a suitable planning document for the time, the policy itself did not evolve with a changing world. Factors such as enhanced legislation and regulation, and advances in science and technology need to be considered in a new coal policy.

We recognize this a coal policy review with the intention to acknowledge the science, but not to evaluate it. The determination and evaluation of the science and associated data sets should remain with the respective regulatory agencies, namely the Alberta Energy Regulator and the *Impact Assessment Agency* (Canada).

Our general policy recommendations can be summarized as follows:

- A new coal policy should reference environmental protections currently enabled by the Government of Alberta and Government of Canada and how those existing pieces of legislation and regulation ensure the ongoing protection of water and landscapes.
- A new coal policy should seek to inform Albertans and establish confidence that a robust regulatory construct, with strong oversight and enforcement, is in place to ensure environmentally responsible development.

Our specific policy recommendation for a new coal policy is to replace the current category system with a two-zone system:

- Non-Development Zone where resource projects may never be developed.
- Potential Development Zone where resource development may be permitted by regulators such as Alberta Environment, Alberta Energy, and the Government of Canada where applicable.

This approach removes generalizations from the 1976 Coal Development Policy that appear to be based strictly on geography and historical disturbance. Moreover, the provision of two distinct land classifications would support a path of clarity and one that would reduce the potential for conflict through misinterpretation of associated pieces of legislation.

We acknowledge a singular responsibility to protect the environment and welcome the opportunity to provide responsible economic opportunities for all Albertans. Developing a new coal policy that addresses key concerns and corrects common misconceptions can achieve these objectives.

1. Who is Atrum?

Atrum Coal Ltd (Atrum) is a public company listed on the Australian Securities Exchange (ASX), focused on metallurgical coal exploration and mining. In March 2018, Atrum acquired Elan Coal Limited (Elan), a private Alberta corporation which is now a wholly owned subsidiary of Atrum. In 2012, Elan had lodged coal lease applications in Alberta, including the Elan Hard Coking Coal Project (the Elan Project) located in the Crowsnest Pass area of southern Alberta.

Atrum is a responsible exploration and development company and in all our projects, we are committed to land stewardship and minimizing our environmental footprint.

At Atrum, incorporating community and Indigenous knowledge in all phases of the mining life cycle is central to our projects. Our approach is reinforced by sustained, open and transparent communication with communities and government to uphold the highest standards in the resources industry.

We are strongly committed to the wellbeing of employees, contractors, and communities in which we work. Safety is the first and foremost priority of Atrum. During our exploration phase, we have implemented practices and policies ensuring all activities at our work sites are consistently undertaken in the safest manner possible.

We are proud to be part of Alberta. Our employees live and raise families here. We work in the places where we live and play. We will never allow that work to put these places at risk.

2. History and Tenure

The Elan Project area (**Figure 1**) is located approximately 40 kilometers north of Coleman, Alberta and proposes a mine site based on the Isolation South coal deposit covering approximately 2,000 acres (800 hectares).

The Elan Project area is situated entirely on Crown land. The land is typically uninhabited forested areas and does not fall within any National or Provincial park boundaries. Forestry operations and oil and gas activities occur within and adjacent to the proposed project area.

The Elan Project land tenements are registered with Elan, our wholly owned subsidiary. The tenements, referred to as coal agreements (A13 agreement type), were issued by the Government of Alberta to Elan Coal Ltd between 2012 and 2013. The coal agreements, which initially were coal lease applications, provided the right to exclusively explore the land for a period of 15 years, with an option to extend at expiry. In 2020, the Government of Alberta converted those historical applications to leases. See Appendix A for a detailed listing of Elan's land Tenure.

Elan currently holds the exploration rights to approximately 45,380 hectares (~113,450 acres), with approximately 800 hectares (~2,000 acres) being considered for an initial viable development opportunity to mine the Isolation South coal deposit.

Clearly, coal leases do not necessarily mean coal mines will be developed. As with oil and gas, exploration and subsequent feasibility studies are required to determine whether the resources owned by Alberta can be responsibly and economically developed.

3. Elan Project

The Elan Project comprises two main areas, the Isolation South coal deposit which is being considered for initial development and the Elan South coal deposit.

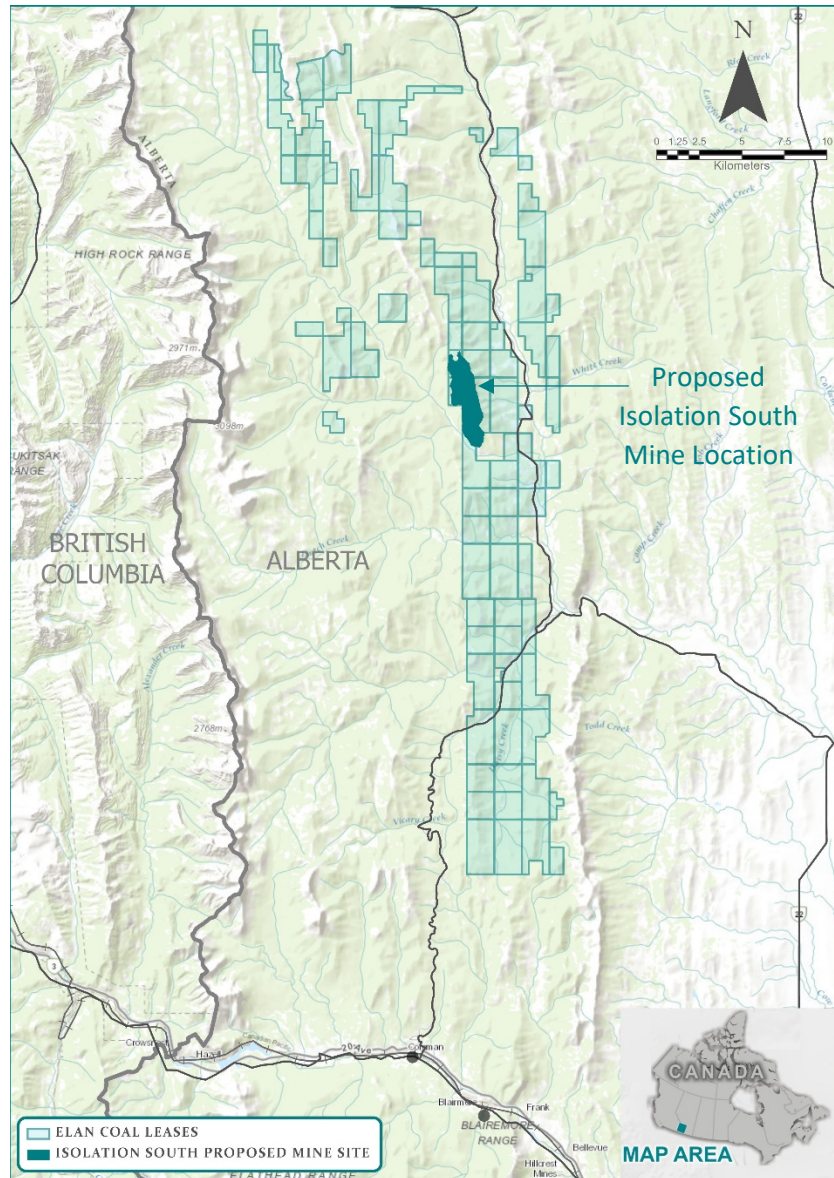


Figure 1: Elan Project area map – Southern Alberta

Since the acquisition of Elan three years ago, Atrium has invested approximately \$40 million in exploration and preliminary engineering activities for the Elan Project. A Scoping Study was completed in April 2020 and an updated Scoping Study was completed in December 2020. As a result of the significant exploration and field work that we have done over the last three years, Atrium has established that the Elan Project is home to an estimated 486 million tonnes (Mt) of metallurgical coal (7 Mt of which is classified as "Measured" in accordance with JORC (Joint Ore Reserves Committee – the Australian resources reporting standard), 228 Mt of which is classified as "Indicated" and 252 Mt of which is classified as "Inferred").

Comprehensive quality testing, combined with review of substantial historical test-work data for the broader Elan Project, has confirmed Tier 1 Hard Coking Coal (HCC) quality. Ultimately, through this extensive body of work, Atrum has validated the resource and infrastructure components for a world class project with a Net Present Value in the order of C\$1 billion.

Of importance are the high level direct economic benefits that will accrue to the people of Alberta. The estimated annual expenditures will be in the order of C\$400 million with a large proportion being contributed locally through royalties, taxes, wages, sub-contracting, equipment, and operational consumables, that will yield specific support to Albertan businesses and communities over a currently estimated ~20-year life of mine for the initial Elan Project. During operations approximately 350-400 people will be directly employed, mostly drawn from local municipalities and Indigenous communities, with further indirect job creation in the order of 3 times that number.

The Elan Project is only mineable as a surface mine. Underground mining is not economically feasible for most metallurgical coal deposits in Alberta due to the complex nature of the folded coal seams. It is in most cases, the folded nature of the seams that makes them viable as it thickens the coal which enables safe and economic extraction.

Atrum have completed detailed coal quality testing as part of our development initiatives. This detailed testing provides confirmation that the Elan South and Isolation South project areas host a high-quality metallurgical resource, commonly associated with the western Canadian Mist Mountain formation.

Atrum's coal quality testing was conducted using core samples from over 35 exploration holes, providing confidence that the resource can deliver a mid to low volatility coal that has historically received a premium valuation compared to other, globally sourced coals.

Alberta maintains some of the most comprehensive environmental protections in the world and as a company, we welcome this rigorous regulatory control. The successful rehabilitation of mines in the Hinton area of Alberta demonstrates the efficacy of this regime and confirms that, with the right combination of regulation and modern mining methods, environmentally responsible coal mining operations can be conducted. We have embraced Alberta's comprehensive environmental regime and have planned to execute the Elan Project in accordance with the requirements of the relevant Provincial and Federal agencies. Environmental impact assessments and their associated review processes will ensure that the Elan Project, if approved, will mitigate the potential impacts of surface mining, and that the site is properly rehabilitated as early as possible in accordance with the plan approved by the relevant authorities.

Furthermore:

- Total disturbance planned for our Elan project represents an insignificant percentage of total Category 2 lands, while restoring the site to comparable topography;
- We aim to minimize the Elan Project footprint and cumulative impact where possible, including investigating the sharing of existing and new infrastructure with other entities; and
- The Elan Project aims to offset its carbon footprint over the lifetime of the project. We are currently working on a number of solutions to minimize our carbon footprint, including the use of lower carbon fuels, renewable electricity and electrification of our mobile mining fleet.

4. Metallurgical Coal vs Thermal Coal

There are two different types of coal, each with a distinct purpose. The Elan resource is metallurgical (or steelmaking) coal.

Metallurgical coal or steelmaking coal is used in the oxygen furnace process for the manufacture of steel. Steel is essential to modern life and global socio-economic development. It is used to build homes, schools, offices, factories, ships, trucks, cars, buses, bridges, railways, medical equipment, food processing facilities, household appliances, and many more items. Steel is also critical in building renewable energy infrastructure projects such as wind turbines and solar panel frames, as well as the manufacture of electric and low emission vehicles. It is a critical ingredient in the world's push towards a greener economy and a carbon neutral future.

The ethical sourcing of metallurgical (steel making) coal (and therefore steel) is also a key consideration. Alberta metallurgical coal is of the highest quality and as a result, is more efficient to use and requires less coal per unit of steel produced which leads to lower global CO₂ emissions. Suppliers competing to provide metallurgical coal include Russia, China and smaller producing nations which do not have stringent environmental protections or requirements to protect the rights and interests of Indigenous communities and will produce lower quality coal than Alberta. Without Alberta metallurgical coal, these alternative suppliers will meet the growing market demand.

Thermal coal or steaming coal is burned to create steam to drive turbines that generate electricity and/or heat.

5. Existing Coal Policy

A Coal Development Policy for Alberta (the 'Coal Policy') was originally published in 1976. While some legislation was enacted prior to that time, many additional pieces of legislation and regulation were introduced afterwards (see **Figure 12**). The scope of the Policy was wide-ranging and included, among other items, a land use classification system. The Coal Policy divided the province into 4 Categories which guided where and how coal leasing, exploration and development could occur. The four Categories, as taken from the Coal Policy are:

- Category 1, in which no exploration and development will be permitted. This Category includes National Parks, present or proposed Provincial Parks, Wilderness Areas, Designated Recreation Areas, Wildlife Sanctuaries, etc.
- Category 2, in which limited exploration is desirable and may be permitted under strict control but in which commercial development will not be considered *at the present time* (emphasis added). This Category includes lands in the Rocky Mountains and foothills *for which the preferred land use remains to be determined* (emphasis added).
- Category 3, in which exploration is desirable and may be permitted under appropriate control. This Category includes northern forested region and eastern portions of the Eastern Slopes.
- Category 4, in which exploration may be permitted under appropriate control. This Category includes all areas of the province not covered by the other 3 Categories.

The Coal Policy was rescinded, effective June 1, 2020, in order to align coal development and permitting activities, including tenure, with the rigorous oversight and regulatory processes in

place for other resource commodities. The Government of Alberta fully reinstated the Policy on February 8, 2021.

The Coal Policy did not, and does not, preclude the development of surface mines in Alberta. As recently as May 2016, NDP Energy Minister Margaret McCuaig-Boyd provided direction to the Alberta Energy Regulator, supporting surface mining on Category 2 lands. “The coal Category 2 designation does not preclude surface mine development. The Coal Policy states that surface mining of coal ‘would not normally be considered’ because, in 1976, the land use had yet to be determined, infrastructure was lacking or absent, and/or there are local areas of environmental sensitivity.”¹

At the time, Ram River Coal Corporation was seeking clarity about coal development on Category 2 land. Minister McCuaig-Boyd, in her direction to the Alberta Energy Regulator, further recognized the subsequent implementation of regional and subregional planning documents, and how those modern planning tools further define how resource development can occur. She closed her direction letter to the AER with, “While we will continue to work on regional and subregional planning for this and other areas, these processes are not intended to prevent developments that make sense.”¹

Examples of such regional and subregional planning can be found in the South Saskatchewan Regional Plan (SSRP), administered by the Alberta Government, to guide human development on public land. Through regional planning, as well as other initiatives, Alberta is shifting to a more effective and efficient management system that considers the cumulative effects of all activities and improves integration across the economic, environmental, and social pillars.

The Livingstone-Porcupine Hills Land Footprint Management Plan is also contained within the SSRP. Albertans clearly identified a priority of the Livingstone area and the Porcupine Hills as having high values for components such as headwaters, west slope cutthroat trout, fescue grasslands, and recreation opportunities. Opportunities for the responsible development of natural resources, tourism, and recreational activities are maintained as outlined in the objectives and strategies in the SSRP.

6. 1976 Coal Policy Categories vs. Metallurgical Coal Resources

The bituminous (or metallurgical) coal trend in Alberta parallels the Rocky Mountains as shown on **Figure 2**. Coal to the west the bituminous trend is metallurgical, coal to the east is thermal.²

¹ Letter written by Energy Minister Margaret McCuaig-Boyd dated May 24, 2016.

² AER Report ST-31.

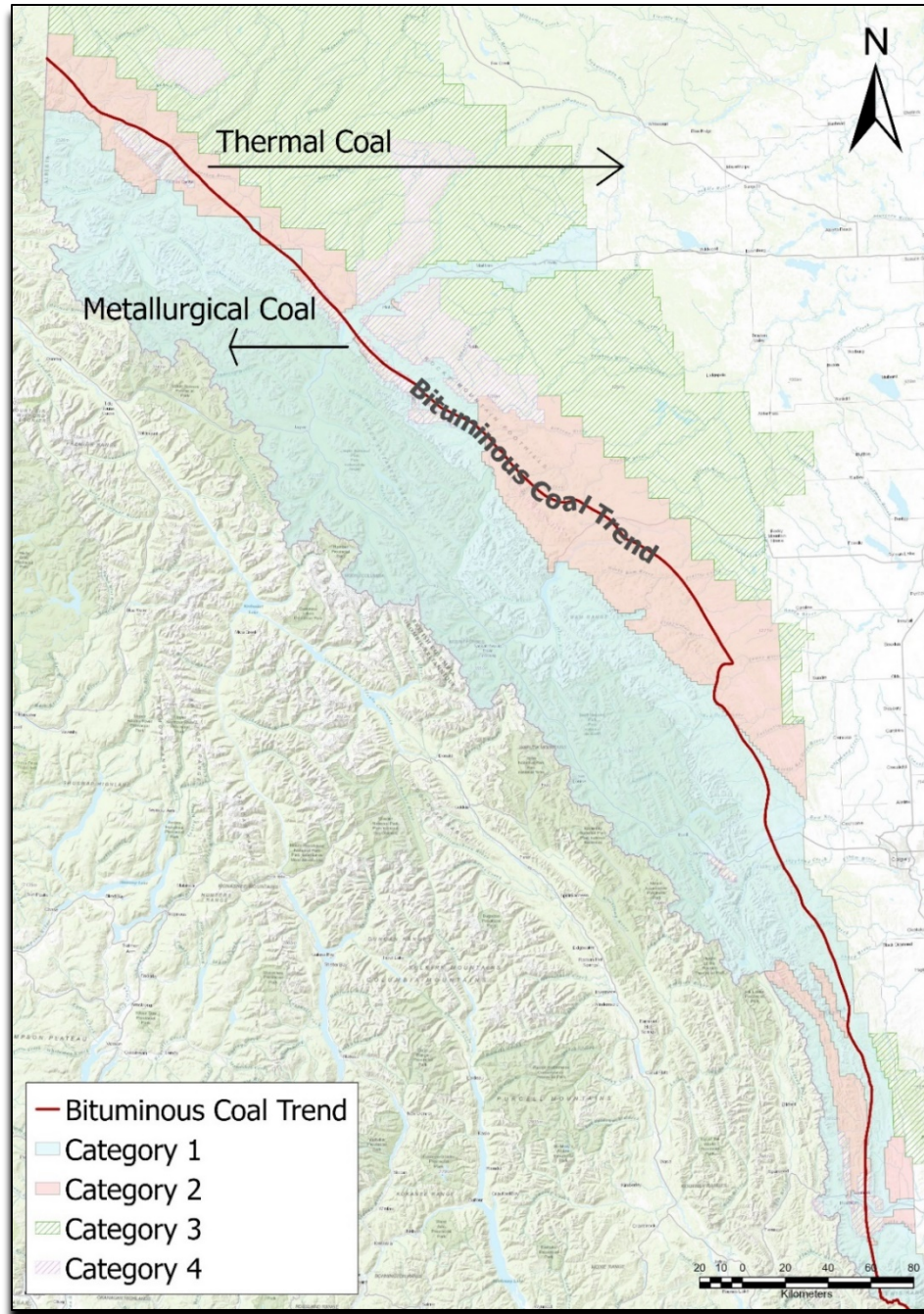


Figure 2: Metallurgical Coals vs. Thermal Coals²

As shown in **Figure 3**, known metallurgical coal deposits that have been catalogued by the Alberta Government occupy a small subset of the Categories 1, 2 and 4, with no metallurgical coal potential within Category 3.²

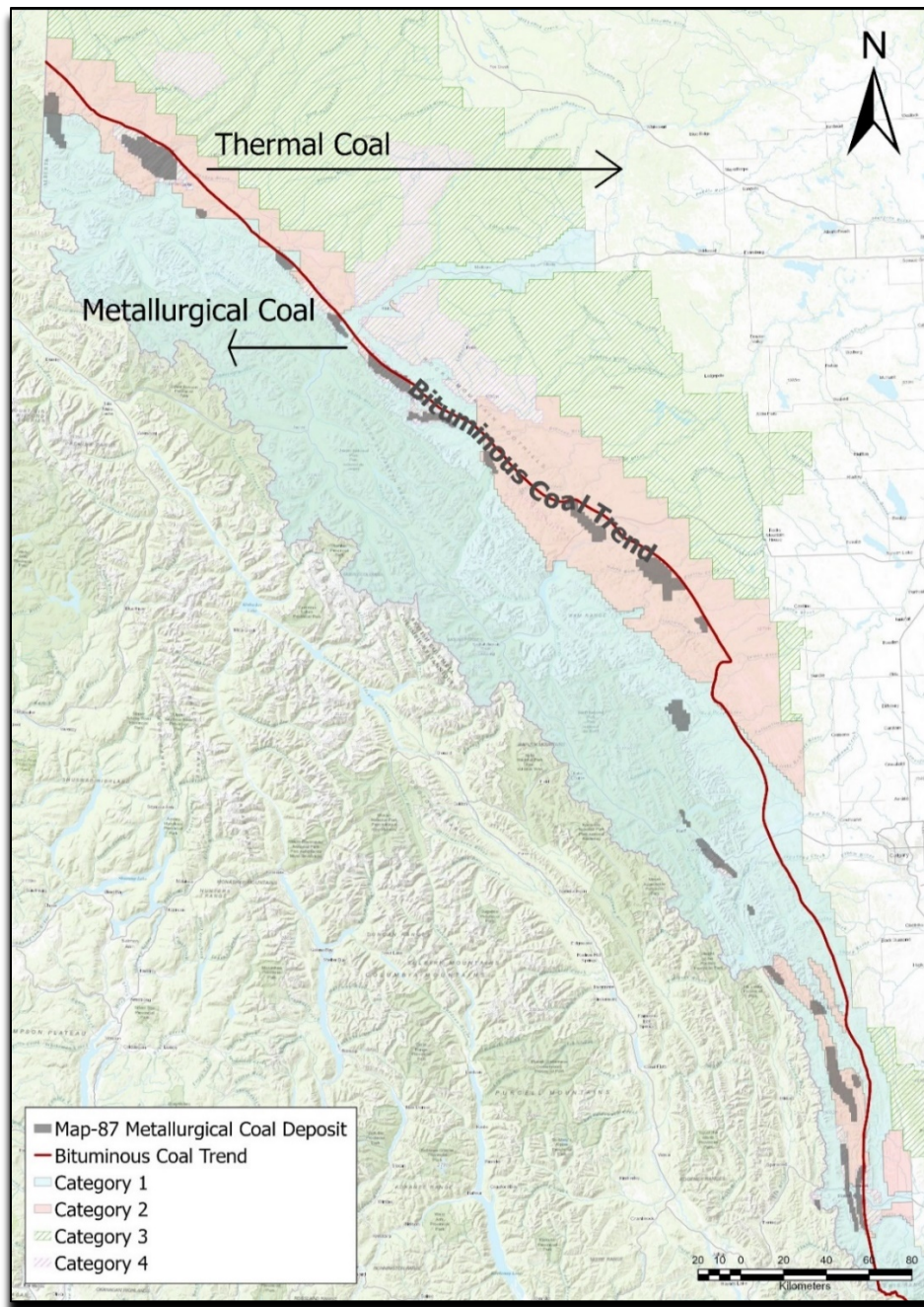


Figure 3: Metallurgical Coal Deposits vs. Categories²

Category 1 currently comprises some 4.15 million hectares of protected land that expressly prohibits coal exploration and development. This Category includes the environmentally sensitive and snow-capped peaks that are symbolic of Alberta. Identified metallurgical coal deposits within Category 1, as catalogued by the Alberta Government, encompass some 35,310 hectares which is less than 1% of Category 1 lands. Given the environmental sensitivity, these resources will likely never be developed.²

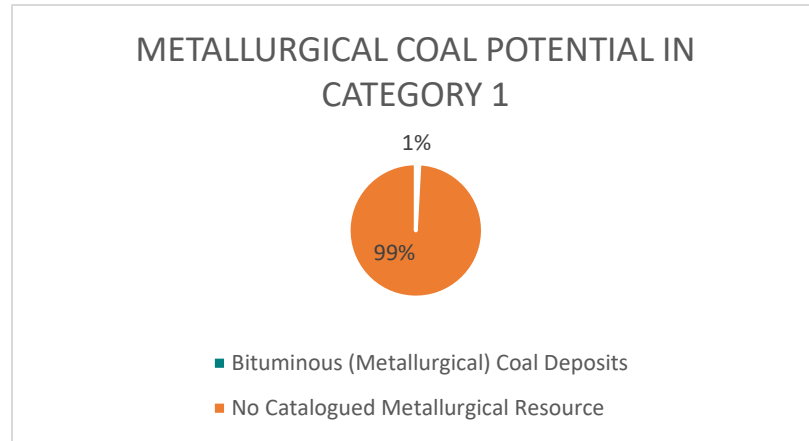


Figure 4: Category 1 Coal Deposits²

Category 2 currently comprises some 1.5 million hectares of land. Identified metallurgical coal deposits within Category 2, as catalogued by the Alberta Government, encompass some 75,321 hectares (or 5% of Category 2 lands).²

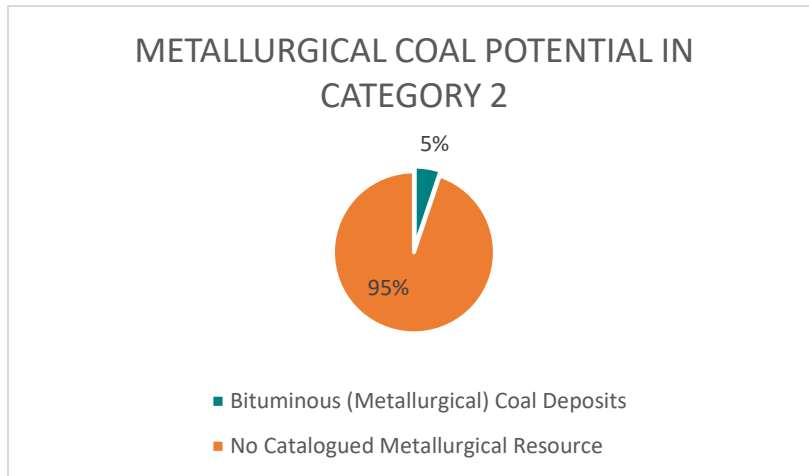


Figure 5: Category 2 Coal Deposits²

Category 3 currently comprises some 3.3 million hectares of land. There are no known metallurgical coal deposits within Category 3, as catalogued by the Alberta Government.²

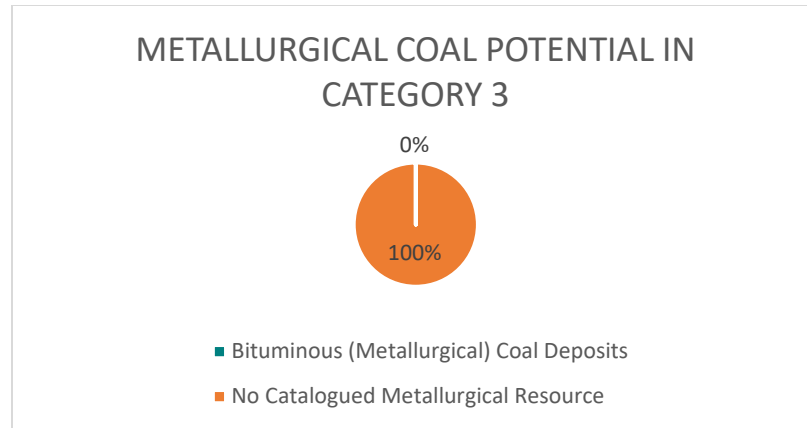


Figure 6: Category 3 Coal Deposits²

Category 4 currently comprises some 533,300 hectares of land. Identified metallurgical coal deposits within Category 2, as catalogued by the Alberta Government, encompass some 66,409 hectares (or 12% of Category 4 lands).²

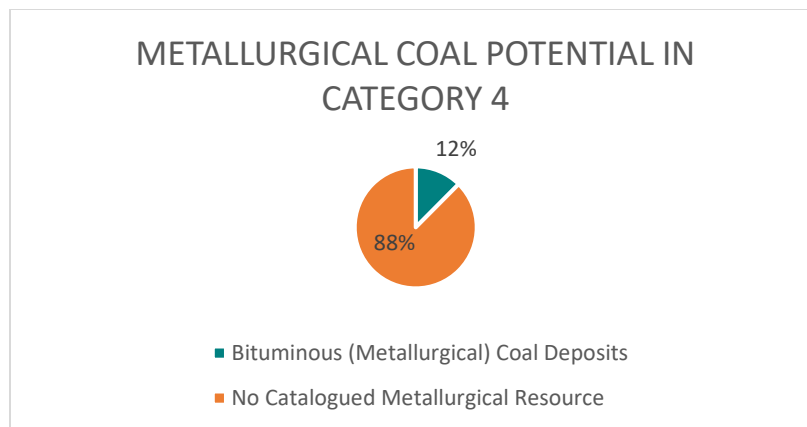


Figure 7: Category 4 Coal Deposits²

The Alberta Government has previously recognized the value of metallurgical coal to Albertans and has granted exemptions approving leases and licences since the 1976 Coal Development Policy was enacted.

In November 2009, the Alberta Government authorized the Energy Resources Conservation Board (ERCB) to grant an amended permit to Grand Cache Coal Corporation to develop the No. 8 surface mine site. In July 2011, Grand Cache Coal was again granted an amended mine permit and a new mine licence by the ERCB to commence development of its new No. 12 South B2 operation. The locations of both development sites, No. 8 and No. 12 South B2 are located on Category 2 land.

In 2016, Ram River Coal was allowed to permit a surface mining project on Category 2 land in west-central Alberta, with clear direction from the Alberta Government that the 1976 Coal Policy did not preclude development of surface mines on Category 2 lands.

7. Shortcomings of the Existing Category System

- i) No recognition of environmental similarity between Category 2 and Category 4 lands.

There is no material difference between Category 2 and Category 4 lands from an environmental perspective. As further described below, both Categories have similar environmental considerations, topographies, and species at risk concerns, yet Category 4 development is not subject to the same restrictions as Category 2 development.

Maintaining the notion that Category 2 and Category 4 lands are somehow environmentally different does not facilitate the orderly and responsible assessment, permitting and development of resource projects.

It appears that Category 4 was created to capture what would have been Category 2 lands if there had not been historical activity on the land.

Table 1 compares the area covered by environmentally sensitive and species at risk by Category of land:

Table 1: Environmental Considerations for Category 2 and Category 4 Lands³

	Grizzly Bear Range	Critical Habitat of Aquatic Species at Risk	Key Wildlife and Biodiversity Zones	Mountain Goat and Sheep Areas
Category 2	95%	2%	21%	14%
Category 4	93%	1%	16%	10%

The following aerial images further highlight the similarities between Category 2 and Category 4 lands.

³ Government of Alberta shapefiles: Key Wildlife Layers and Critical Habitat of Aquatic Species at Risk.

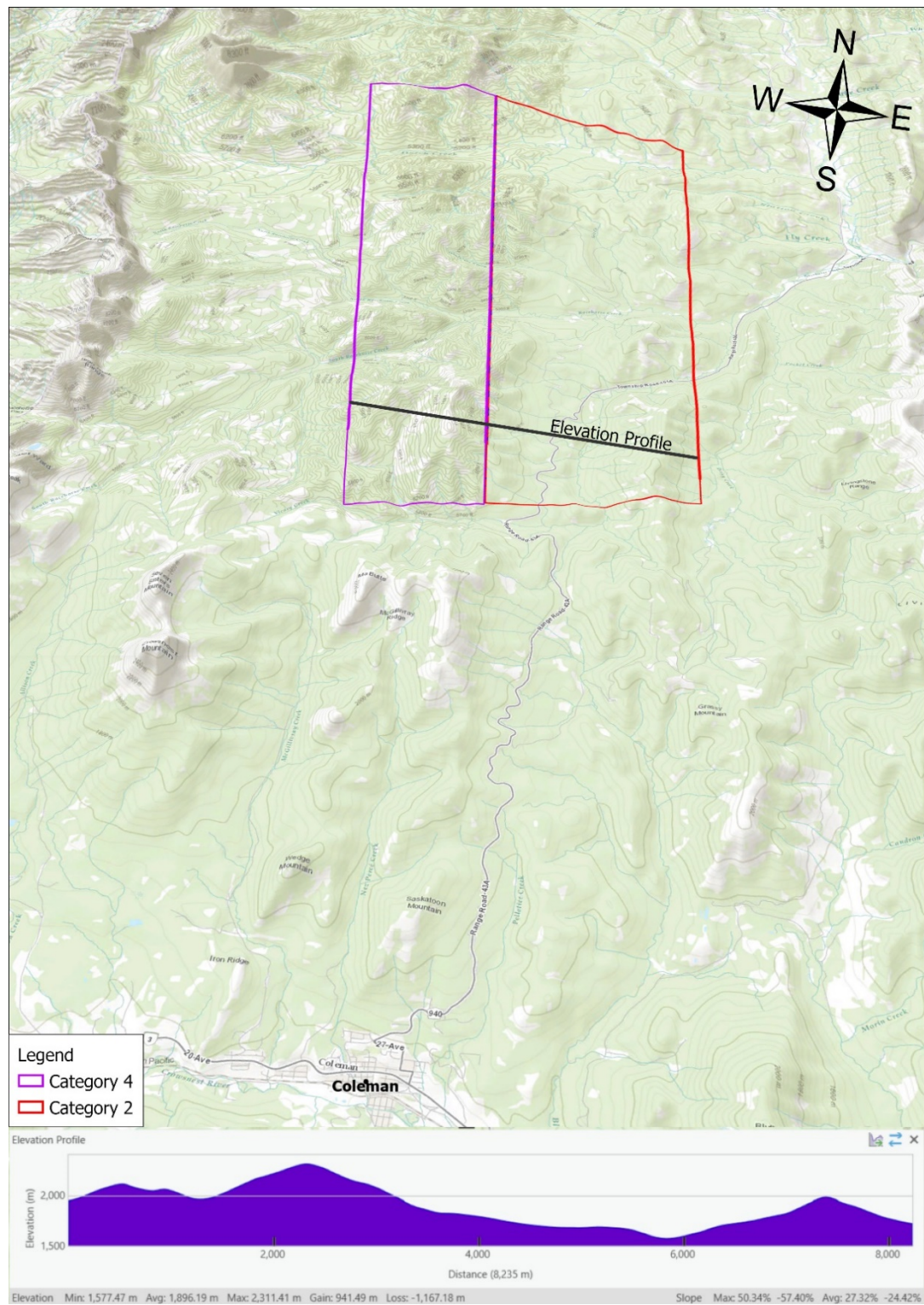


Figure 8: Southern Alberta Category 2 vs. Category 4

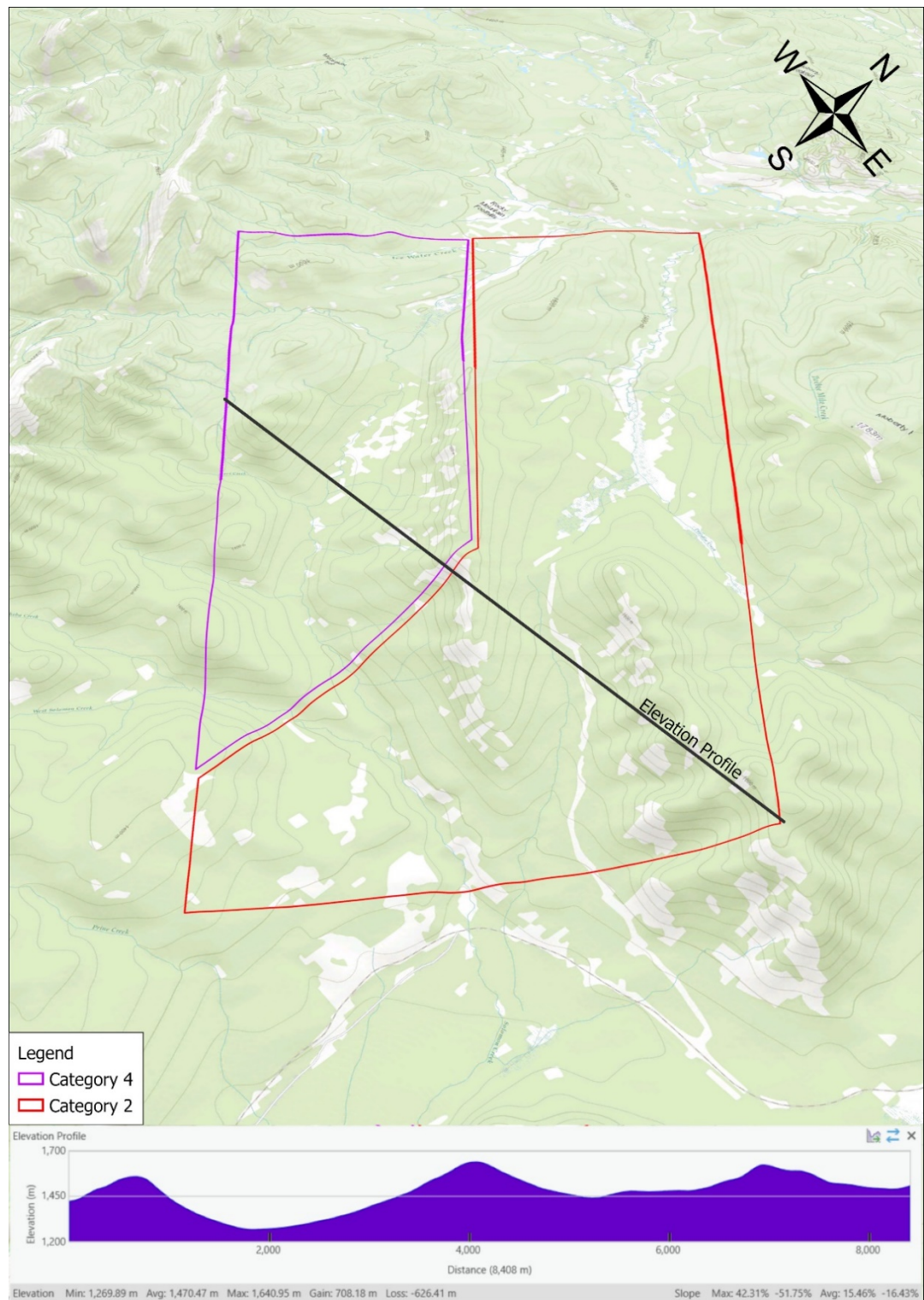


Figure 9: Central Alberta Category 2 vs. Category 4

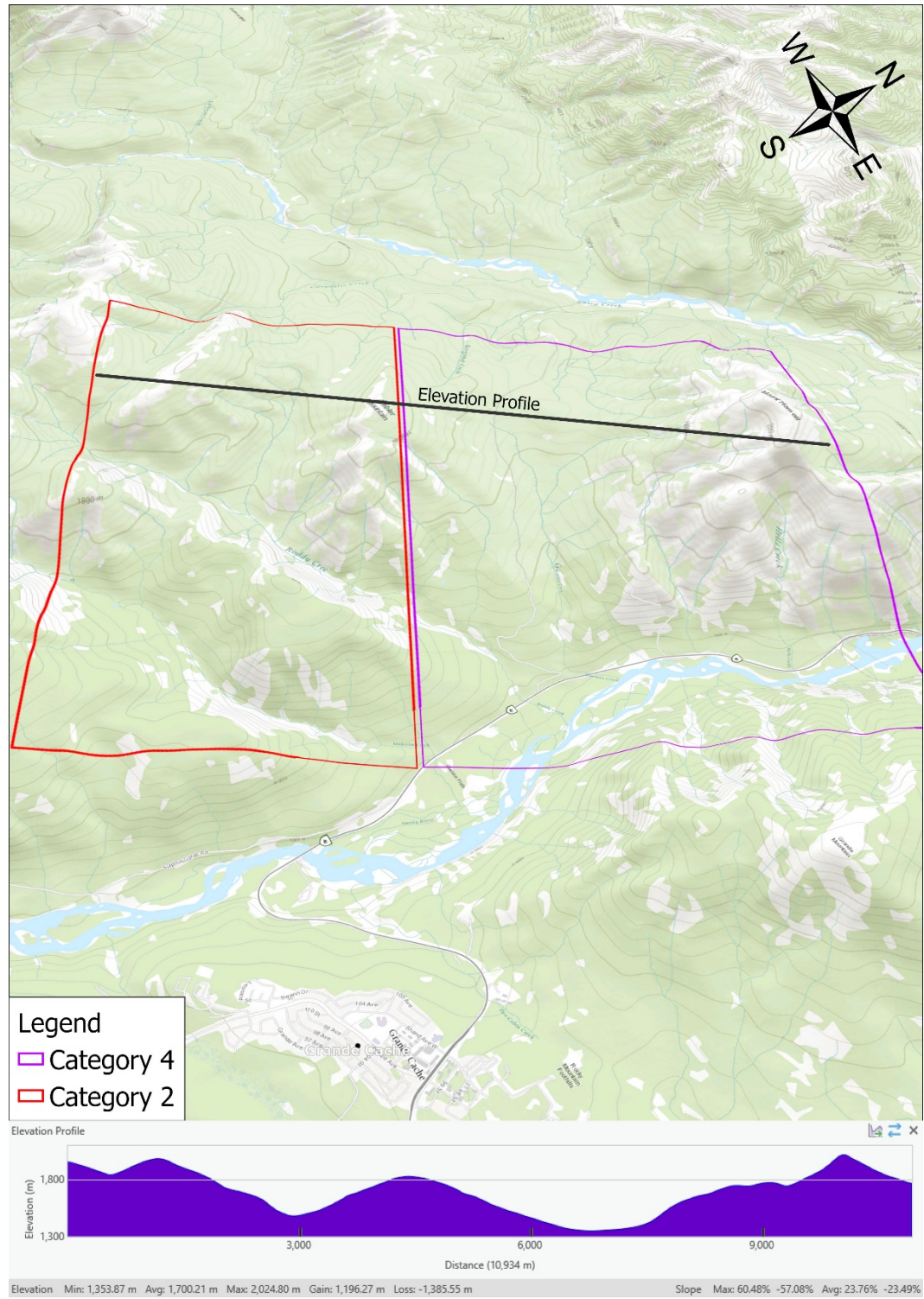


Figure 10: Northern Alberta Category 2 vs. Category 4

- ii) No recognition of individual project impacts, mitigation, management, and approach. Each project possesses unique development opportunities requiring individual consideration of its potential benefits and challenges.

For example, the existing Category system does not differentiate between a project on Category 2 lands that may have lower cumulative environmental effects than a project on Category 4 lands.

Each project should be viewed on its own merit and not based on an artificial land Category determination that does not gauge the strengths and weaknesses of proposals to develop land which holds metallurgical coal potential. Alberta's exceedingly high regulatory bar should be rigorously applied to project proposals. Artificial land categorizations do not benefit the environment or the economy – or Albertans who are the owners of these resources.

- iii) No recognition for modern responsible mining practices that include use of shared infrastructure (reduced footprint), progressive rehabilitation (reclaiming as mining advances), post-mining land use planning, development, and enforcement (that protect future multi-generational land use), and water treatment (selenium capture and sequestration).

The mining industry has evolved greatly since the original Coal Policy was introduced. Advances in process monitoring, controls, and technology, along with responsible development and strong environmental protection measures should factor into every decision related to development of resources.

Consistent with the requirements of the *Environmental Protection and Enhancement Act*, a closure plan must be developed to detail the transition of the site from mining to its post-mine productive land use. Progressive rehabilitation is applied during resource development; meaning when one phase of mining is completed, reclamation begins immediately.

The goal of rehabilitation and reclamation is to return the land to a state that fits local surroundings. This includes ensuring the range of vegetation (including forage and rare plant species), and a range of forestations (including sensitive species) are put in place in an optimum way, which can be achieved with the input of local communities and Indigenous bands. Modern reclamation plans also provide for multi-generational use of reforested and range lands, where ungulates, birds, bats, and other wildlife will thrive.

Modern mining has also established state-of-the-art methods for water treatment that includes the capture and sequestration of selenium and nitrates. Each step in the site water management process is designed to properly isolate and treat water that comes into contact with mining activities. Technology ensures that any water released to the environment meets the stringent surface water quality guidelines established by provincial and federal regulators.

In addition, the potential for the use of shared infrastructure between projects could result in a reduced overall land disturbance and reduced overall cumulative effects. Shared infrastructure could be applicable to many stages in the mining process including common waste rock storage, common processing, common transportation infrastructure, and common utilities infrastructure.

- iv) No recognition of modern, post-1976 Coal Policy regulations that protect the environment while ensuring responsible development.

In 1976, when the Coal Policy was written, the authors understood that any number of advances could support responsible development of this resource. Specifically, the authors of the Coal Policy considered ‘... technology which has yet to be developed.’ Modern mining has evolved, along with much more stringent regulations ensuring responsible resource developments. With an eye to future use and development, the existing Coal Policy further states, ‘An energy source of his magnitude cannot be ignored or remain undeveloped indefinitely.’⁴

In addition, the original Policy provides no consideration for the current enhanced legislation and regulations, and the specific enforcements provided therein. The Coal Policy contains some wording with respect to land use, rights, etc., however the more recent individual pieces of legislation with their associated regulations provide stronger oversight. *There are over twenty (20) distinct pieces of legislation and/or regulation directly applicable to mining with each providing clear guidance for the protection of the environment.* For a partial listing of the specific legislation applicable to mining, please refer to Section 11 of this submission.

- v) No recognition of the limited metallurgical coal occurrences on Category lands.

Metallurgical coal is not widespread across all of Alberta. The resource is only present in limited areas with specific geological conditions. For high-quality metallurgical coal to exist, there must be a more structured geological setting along with temperature and pressure enabling the creation of such deposits. These specific events have only occurred within a small subset of Category lands in the province.

8. General Policy Recommendations - What Should the Coal Policy Include and Why?

The 1976 Coal Development Policy contains outdated guidelines that do not reflect updated legislation, recent land use planning, advances in science and technology and the environmentally responsible mining methods used today.

Alberta’s rigorous legislative and regulatory framework ensuring responsible and sustainable resource development should be applied to all projects regardless of land Category.

- A new coal policy must reference and work alongside updated regulations and land use planning while acknowledging technological advancements that support the protection of the environment.
- A new coal policy must ensure existing Category 1 lands remain protected.
- A new coal policy must facilitate the responsible development of metallurgical coal resources on remaining lands without any historical bias.
- A new coal policy must address visual concerns by ensuring the rehabilitated landform does not look out of place in the surrounding landscape.

⁴ A Coal Development Policy for Alberta, June 15, 1976

- A new coal policy must address long-term water quality concerns by ensuring water monitoring activities and water treatment facilities operate beyond the life of a proposed mine.
- A new coal policy must acknowledge the existence and importance of modern water treatment practices, while deferring the technical assessment of these practices to the applicable regulators.
- A new coal policy must acknowledge industry advancements that support protection of the environment.
- A new coal policy must provide meaningful opportunities for Indigenous communities, local municipalities and directly effected stakeholders to provide input on the development, operation and ultimately rehabilitation of coal projects.
- A new coal policy can be used to protect existing lands where no metallurgical coal resources exist. This additional protection could encompass approximately 95% of existing Category 2, 3 and 4 lands.

Water quantity for downstream users is already protected by the *Water Act* (Alberta), which supports the existing ‘first in time, first in right’ priority system. The water priority system in Alberta ensures that existing water users such as municipalities, ranchers, and farmers will maintain the priority of their licenses and always have access to their water allocation ahead of any new development.

9. Specific Policy Recommendations

Alberta has the opportunity and the responsibility to support both the environment and the economy. Science, technology, and strong legislative and regulatory framework have greatly surpassed the intent, purpose, and value of the coal Categories created in 1976.

We respectfully propose that a new coal policy should adopt a new land classification system that would continue to protect lands while enabling individual projects to be assessed on their own merits against existing and evolving regulatory frameworks.

- Non-Development Zone 1: a **resource ineligible zone** where no resource development is allowed.
- Potential Development Zone 2: a **resource regulated zone** where resource projects may be considered based on the merits of the individual project as permitted by regulators.

In consultation with existing leaseholders, Indigenous communities, and other stakeholders, these zones could be drawn to expand and protect additional lands while simultaneously allowing Alberta to build its economy.

Such a distinction would add clarity, provide certainty, reduce conflict, leverage science and technology, diminish red tape and increase the area of environmentally protected lands. This is achievable by applying world-leading environmental governance to the foothills and other terrain now subjectively assigned to Categories 2 to 4.

10. How Do These Recommendations Improve Upon the 1976 Coal Policy?

The recommendations outlined in Section 9 of this submission remove generalizations from the 1976 Coal Development Policy that appear to be based strictly on geography and historical disturbance.

Exemptions have been previously granted on Category 2 lands to facilitate the development of resources. Our recommendations, if adopted, would provide greater clarity and consistency to the environmental characterization of lands hosting metallurgical coal deposits, while allowing projects to be assessed on their individual merits.

Moreover, the provision of two distinct land classifications, a potential development zone with eligible resources and a non-development resource ineligible zone, will remove what can be considered loopholes in the current Category system. Requests for “grandfathering” future development on certain lands is one example of such a loophole.

The suggestions we have provided in Section 9 would:

- Facilitate an increase in protected areas compared to existing Category 1 lands
- ensure long-term protection of our iconic mountain landscape;
- ensure long-term protection of water for downstream users; and
- ensure responsible development of this resource for all Albertans.

A resource ineligible zone comprising the current Category 1 lands will continue to protect Alberta’s mountain landscape while sterilizing less than 1% of the coal potential across approximately 4.2 million hectares of land.

By comparison, identified metallurgical coal deposits within Category 2, 3, and 4 as catalogued by the Alberta Government, encompass some 141,730 hectares, or 3% of what is proposed as resource eligible lands.²

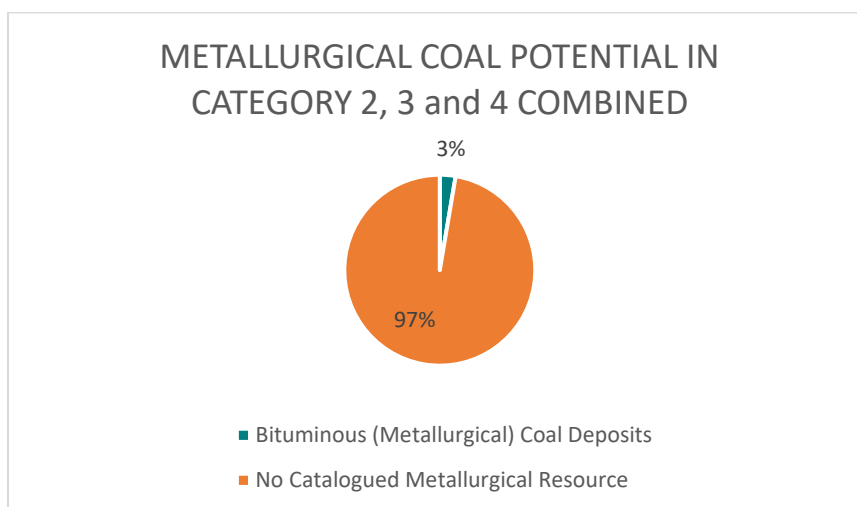


Figure 11: Overall Metallurgical Coal Potential compared to Category 2-4 Lands²

Clearly, the distribution of metallurgical coal potential in Alberta is small compared to the overall land base. Our recommendations, if accepted, would ensure these limited resources can be assessed on a project specific basis. If approved, these high-quality steel-making coal

deposits can be responsibly developed as a source of ethically extracted metallurgical coal for the benefit of all Albertans.

11. Existing Environmental Legislation and Regulation

The development of coal resources in Alberta is subject to a robust regulatory process that begins before a mine is built and continues long after mining is complete.

Alberta and Canada's stringent environmental legislation delivers leading protections and sustainable land use practices. Many of the applicable pieces of legislation were enacted *after* the 1976 Coal Policy. In fact, of the 21 examples listed below, 17 were enacted after 1976, enabling stronger protections than before the 1976 Coal Policy.

Illustrating the relevant legislation and regulations applicable to mining, **Figure 12** highlights the progressive legislative approvals post 1976 to present, while **Figure 13** details the approvals of specific acts and regulations.

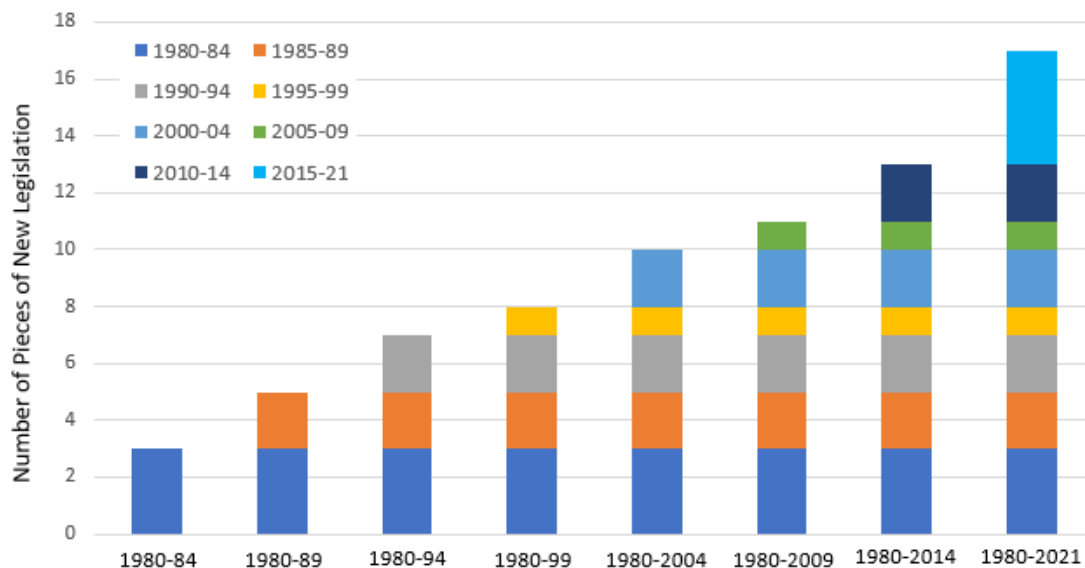


Figure 12: Progressive Legislation since 1980

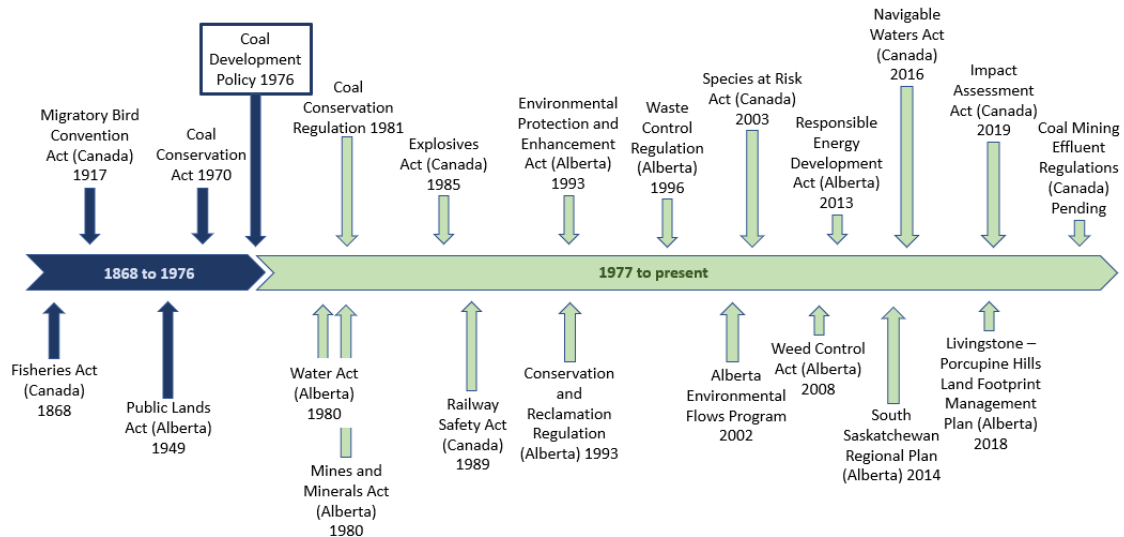


Figure 13: Timeline for Legislation, Regulation, and Land Use Plans

The following is a partial listing of some of the existing protections:

- i) **Environmental Protection and Enhancement Act (Alberta)** – the primary Act in Alberta that regulates the requirements for air, water, land, and biodiversity. The Act supports and promotes the protection and enhancement of the environment by designating proposed activities which require approval or registration. This now 168-page Act was written in 1993 with the most recent update in December 2019. Strong, definable enforcements are outlined within each section applicable to land, water, etc. This Act contains strong guidance regarding reclamation and responsibilities of the operator to conserve and restore the land. EPEA also contains protection of water, prohibiting the release of harm-causing substances into any part of a waterworks system.
- ii) **Responsible Energy Development Act (Alberta)** – Provides for the safe, efficient, and environmentally responsible development of energy resources in Alberta. This was enacted in June 2013 and updated as recently as June 2020. This Act will be applied in conjunction with the Environmental Protection and Enhancement Act for activities applicable to energy resources ensuring alignment of enforcement measures. In this Act's commitment to responsible development of energy, it created a registry for landowners to ensure companies comply with commitments set out in agreements. There are also enforcement and penalties contained within.
- iii) **Coal Conservation Act and Regulations (Alberta)** – Administered by the AER, to control pollution and ensure environmental conservation in the development of coal resources in Alberta. The Act was written in 1970, prior to the 1976 Coal Development Policy. The regulations were separately written in 1981 but intended to operate together. The Act governs the development of coal resources and related facilities while the regulations provide requirements for applications for coal exploration, mining, processing plants, etc.
- iv) **Mines and Minerals Act (Alberta)**– Governs the management and disposition in Crown-owned mines and minerals; includes the levying and collecting of rents, royalties, and bonuses. Originally written in 1980, this Act has been revised many times over the years, further refining context and requirements. Its most recent update was July 2020.

- v) **Public Lands Act (Alberta)** – Establishes the role of the Alberta Government in managing public lands and sets out the mechanisms how public land can be transferred by lease or sale. One of the earlier Acts, this original legislation was written in 1949. A clause in the Act states ‘regulations may be made retrospective as well as prospective where a disposition was made,’ providing enforcement over past and future activities. The most recent update was December 2020.
- vi) **Water Act (Alberta)** – Originally written in 1980, this Act promotes the conservation and management of water through the allocation of water in Alberta. The Act enshrines Albertan’s rights to divert water, and the priorities of water rights among users as well as the decision making and enforcement powers to ensure the objectives of the Act are met. Many updates have been made over the years with the most recent in December 2017.
- vii) **Conservation and Reclamation Regulation (Alberta)** – The objective of this regulation is to ensure the conservation and reclamation of specified land to an equivalent land capability, and sets standards, guidelines, and directives for such activities. Originally written in 1993 with its most recent update in January 2021. This regulation also addresses requirements for reclamation certification, post-certification liability, and security requirements for approved mines and approved pits.
- viii) **Alberta Environmental Flows Program (Alberta)** – Defines environmental or “in-stream” flows describing the quantity, timing and quality required to sustain freshwater ecosystems and the human livelihoods that depend on these ecosystems. Originally outlined in June 2002, this program has expanded to include additional water flow projects; the latest addition was included in March 2019. The program covers Alberta, provincewide with specific framework and studies directly applicable to six other water systems.
- ix) **South Saskatchewan Regional Plan (Alberta)** – identifies the parameters for robust growth, vibrant communities, and healthy environment through long-term planning for the region over the next 50 years. The SSRP sets the economic, environmental, and social outcomes for the region. Approved in September 2014, the Government of Alberta approved the SSRP which was subsequently amended in May 2018 to incorporate newly established parks and subregional plans. With a long-term horizon in mind, the SSRP identifies directions for the region over the next 10 years. The regional plan will be assessed and, if necessary, updated every five years to maintain its effectiveness while maintaining certainty, stability, and commitment to regulatory intent. Any subsequent revisions to the plan require consultation with Albertans.
- x) **Livingstone – Porcupine Hills Land Footprint Management Plan (Alberta)** – A subregional plan that provides direction for the long-term cumulative effects on public lands within the region. This more recent plan was developed in May 2018 demonstrating continued assessment of environmental issues and accepted measures for its protection. This plan falls under the SSRP as above and is administered in the same manner, with consultations and regular assessment timelines.
- xi) **Coal Mining Effluent Regulations (Canada)** – Proposed regulations to set national baseline effluent quality standards for all coal mines, including environmental effect monitoring provisions. Applies to the national coal mining sector. This regulation is in the proposal stage with anticipated compliance in late 2021 or early 2022.
- xii) **Impact Assessment Act (Canada)** – Establishes public processes to examine the environmental effects of a proposed project. This Act came into force in August 2019 along

with a new set of five regulations. While relatively new, the Canadian Environmental Assessment Act (1992) was the original precedent providing strong and clear regulations.

- xiii) **Species at Risk Act (Canada)** – the purpose of the Act is to prevent wildlife species in Canada from disappearing and provides for the recovery of species that are endangered, threatened or extirpated as a result of human activity. This Act was proclaimed in June 2003 and gives six departments, committees, and councils the responsibility for carrying out activities under the Act. Responsibilities range from overall coordination to protection and recovery.
- xiv) **Navigable Waters Act (Canada)** – Requires approval for any works that may affect navigation on navigable waters in Canada. Legislative changes made in 2012 reduced protections for Canada’s navigable waters. In 2016, the Federal Government launched a review to restore those lost protections enabling Canadians to travel the networks of rivers, lakes, and canals for years to come.
- xv) **Fisheries Act (Canada)** – This is the main federal law governing fisheries in Canada. It has protected fish and fish habitat and regulated seacoast and inland fisheries since 1868. Amendments have been made over the years, including habitat protection in the late 1970s. The last amendment was made in August 2019.
- xvi) **Migratory Bird Convention Act (Canada)** – Administered by Environment and Climate Change Canada, this Act seeks to ensure the protection of migratory birds, their eggs, and their nests. The MBCA was passed in 1917 and updated in 1994 and 2005.
- xvii) **Waste Control Regulation (Alberta)** - Defines Alberta’s requirements for proper management of waste. This regulation came into force in September 1996, with the last update in December 2019. The regulation devotes a full section to properties of hazardous waste controls in addition to an exhaustive list of hazardous compounds.
- xviii) **Weed Control Act (Alberta)** - Defines Alberta’s requirements for the prevention, control, and destruction of weeds that present significant economic, social, or ecological risks. Enacted in 2008 with the last update in December 2017.
- xix) **Railway Safety Act (Canada)** - Promotes and provides for the safety of the public, and the protection of property and the environment, in the operation of railways. This Act was implemented in 1989. Since that time, the rail industry has become increasingly complex resulting in many amendments with the last one added May 2013.
- xx) **Explosives Act (Canada)** - An Act respecting the acquisition, possession, storage, and transportation of explosives and the use of fireworks. This was enacted in 1985 with the last update made in 2004.

12. Managing and Enforcing the Regulatory Framework

The legislative and regulatory framework to oversee metallurgical coal projects in Alberta is comprehensive, addressing all elements of environment, health, and safety across the entire mining life cycle.

The human capacity and other resources employed by provincial and federal departments, regulators, and agencies in undertaking the activities of this framework are world class and continuously improving.

All concerned parties benefit from a strongly managed and enforced regulatory system. Ensuring the necessary regulatory resources are in place is an ongoing process involving budgets, human resources, technology and coordination of roles and responsibilities.

Atrum acknowledges and appreciates the significant work undertaken everyday by provincial and federal departments, regulators, and agencies. We urge continued diligence and priority to maintaining and amplifying as needed the strong capacity of Alberta and Canada to operate the regulatory framework that oversees our industry.

13. Expert Opinion – Selenium and Nitrate Removal

Water quality and safety is of the upmost importance to Atrum.

We have retained the services of an accomplished mine water treatment scientist, with direct hands-on Canadian experience in removal of selenium and nitrates from water influenced by mining activity.

The management of water throughout the entire life cycle of the Elan Mine will be guided by science to ensure full compliance with the regulatory framework.

We are happy to make this resource available to the Coal Policy Committee, should the committee be interested in hearing directly about these insights and experiences.

14. Supporting Documentation

The following supporting documentation is included as Appendix B and Appendix C.

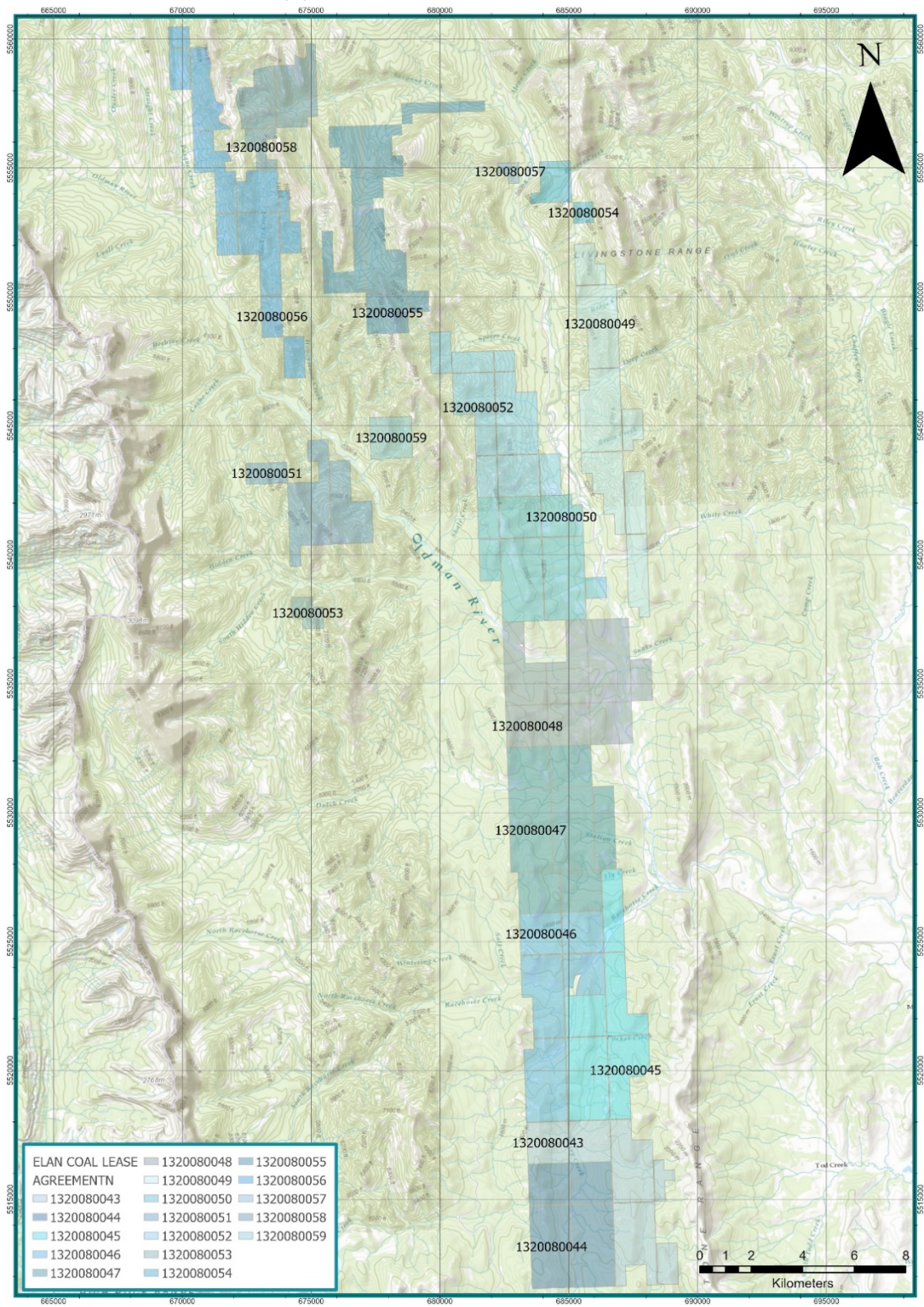
- I. Atrum final landform concept renderings (Appendix B)
- II. Atrum water management infographics (Appendix C)

15. Contact Information

Please direct any comments or questions you may have to:

Andy Caruso
Managing Director and CEO
Atrum Coal Ltd.
andy_caruso_CEO@atrumcoal.com

Appendix A – 2020 Elan Coal Tenure

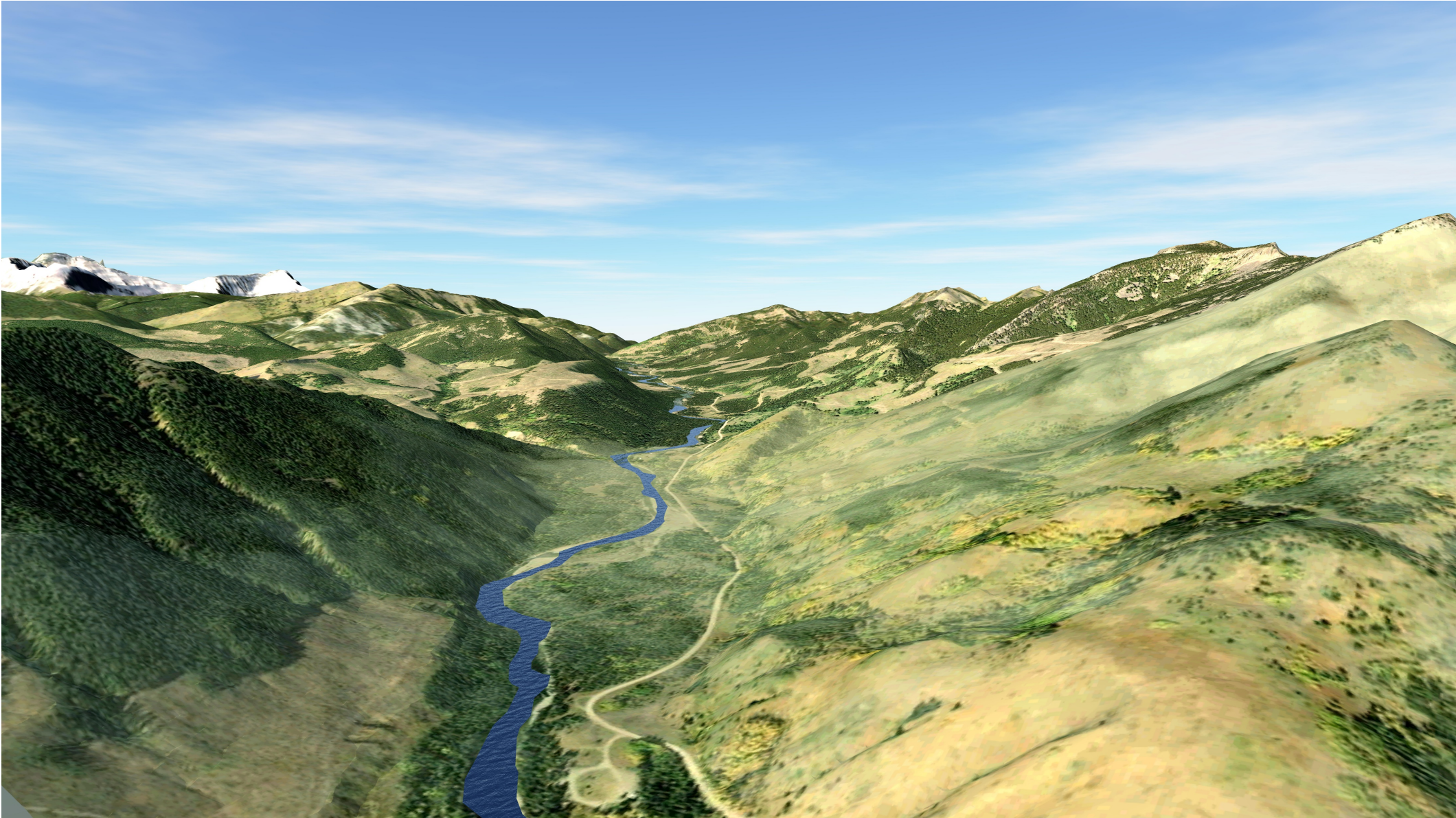




Appendix B

Atrum Final Landform Concept Renderings

Before

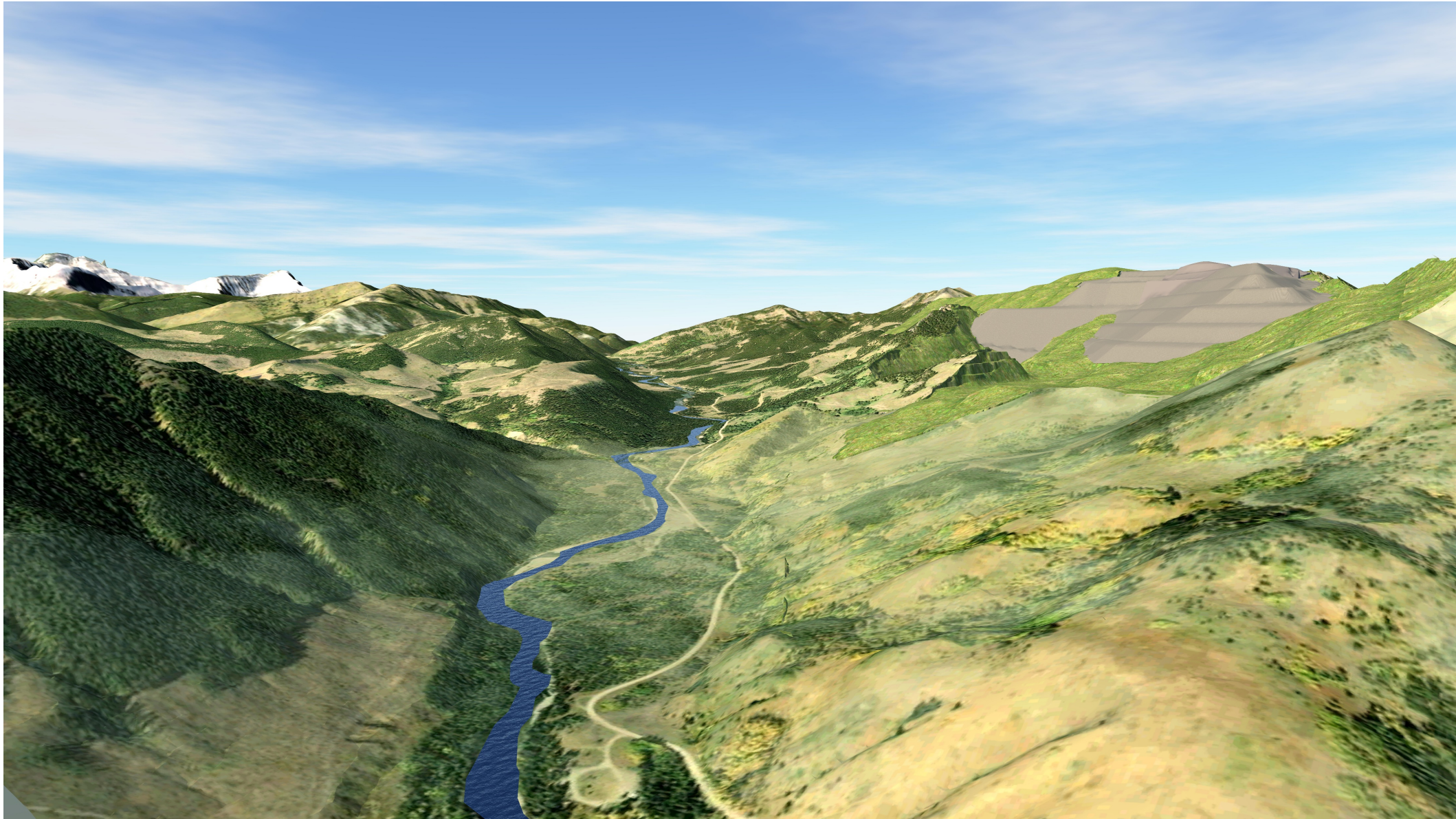




Appendix B

Atrum Final Landform Concept Renderings

Mid Project

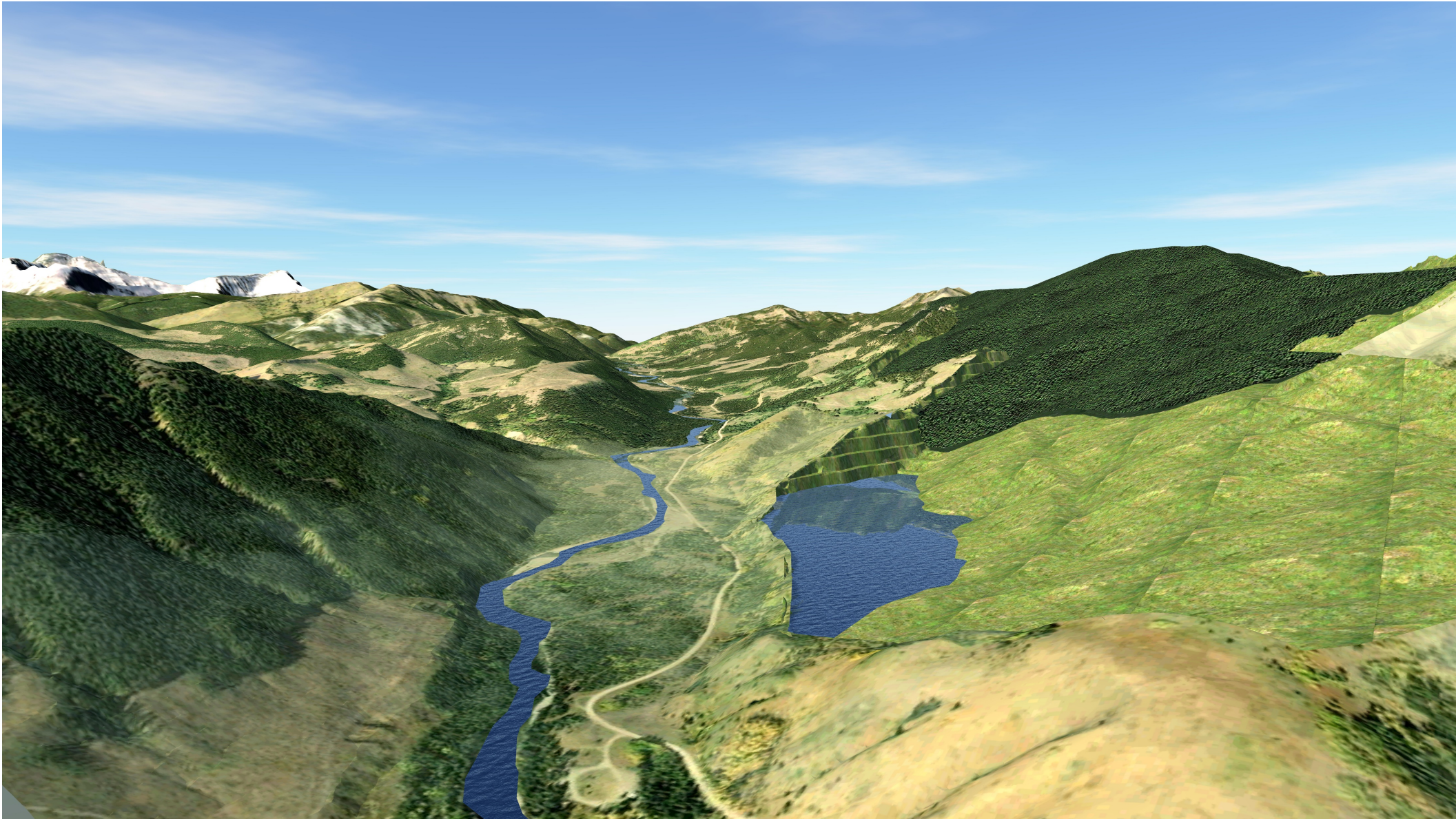




Appendix B

Atrum Final Landform Concept Renderings

Post Closure



Appendix C – Atrum Water Infographics

WATER

WATER DIVERSION

Alberta Environment and Parks has been clear that water allocations within the Oldman River have not changed nor will any new allocations be granted to mining projects. Any water that may be sourced by a proposed mine under an existing allocation will continue to be subject to Alberta's priority system for water use, meaning such a diversion would receive a lower priority than existing users.

The priority system ensures existing water users such as municipalities, ranchers and farmers will maintain the priority of their licenses and always have access to their water allocation.

(1) Licensees and traditional agriculture users have priority among themselves according to the priority number that has been assigned to the license or registration.

(2) A licensee or traditional agriculture user diverting water pursuant to a licence or registration that has a numerically lower priority number is entitled to divert the whole allocation of water specified under the licence or registration before a licensee or traditional agriculture user has any right to divert water pursuant to RSA 2000 Section 31 Chapter W-3 WATER ACT 32 a licence or registration that has a numerically higher priority number.

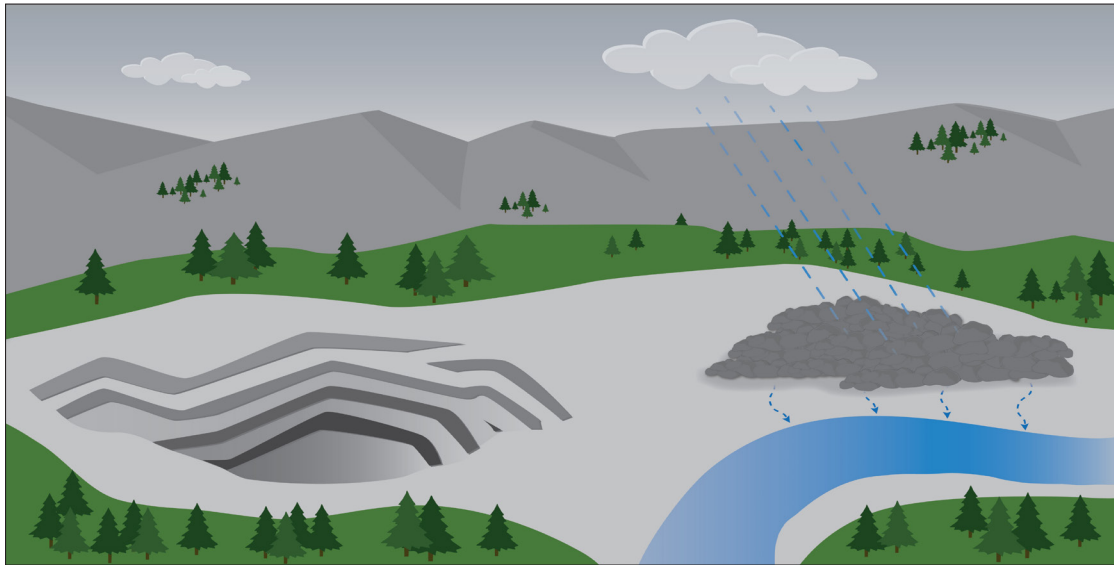
Water Act (Alberta), Chapter 30

WHAT ABOUT SELENIUM?

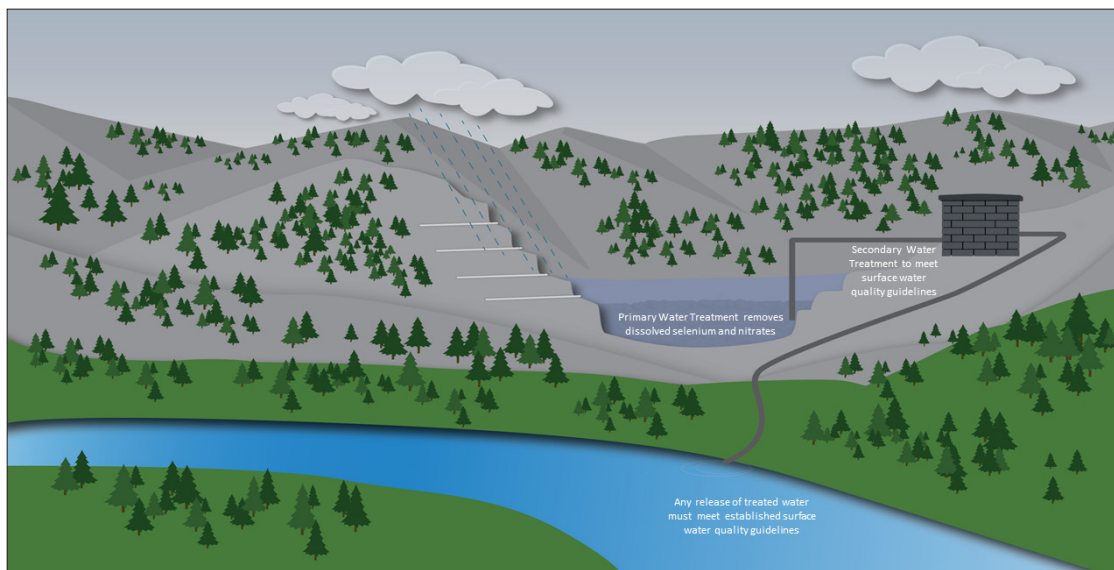
Selenium is often referred to when discussing water quality. Selenium is a naturally occurring, non-metallic mineral that is found in rocks, soils and water. It is naturally released into watercourses when rocks and soils containing selenium are exposed to runoff and/or precipitation. If this water is not treated, higher concentrations of selenium can be experienced. Lack of capture and treatment of selenium enriched waters is what has created the issues that have been observed with older mining practices.

We take the conservation of water very seriously. Our project will maintain selenium and nitrates at their natural levels in watercourses and we will not release untreated water. Through the life of our proposed project, we will work closely with regulators to ensure that any discharge of treated water meets the stringent parameters established by both provincial and federal authorities.

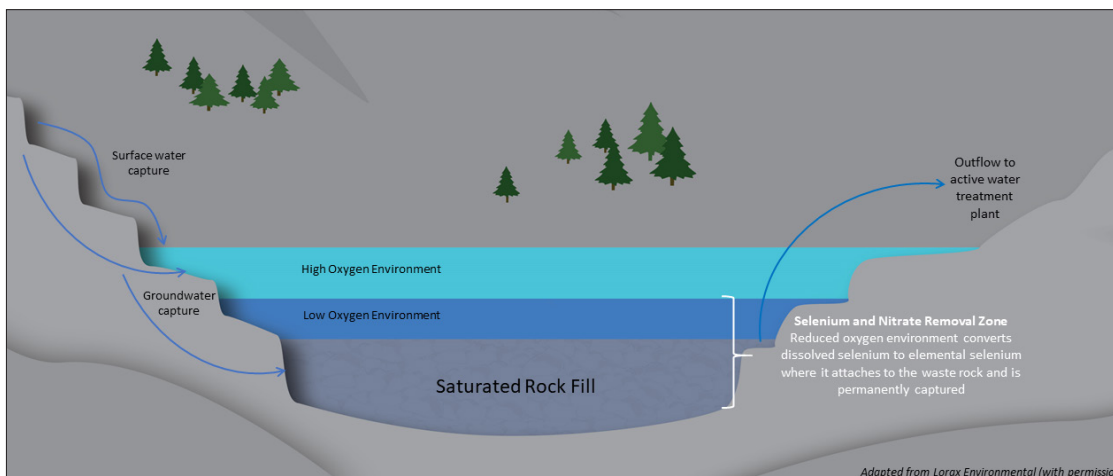
WATER MANAGEMENT



Historical Mining Practices allowed water affected by mining to be released directly into the environment (this is no longer permitted by regulators)



Modern Mining Practices capture and treat water affected by mining



Primary Water Treatment - Saturated Rock Fill

Mine planning plays a key role in meeting water quality objectives. This means that overburden (rock) with a higher potential to release selenium is strategically segregated where possible to minimize contact with precipitation.

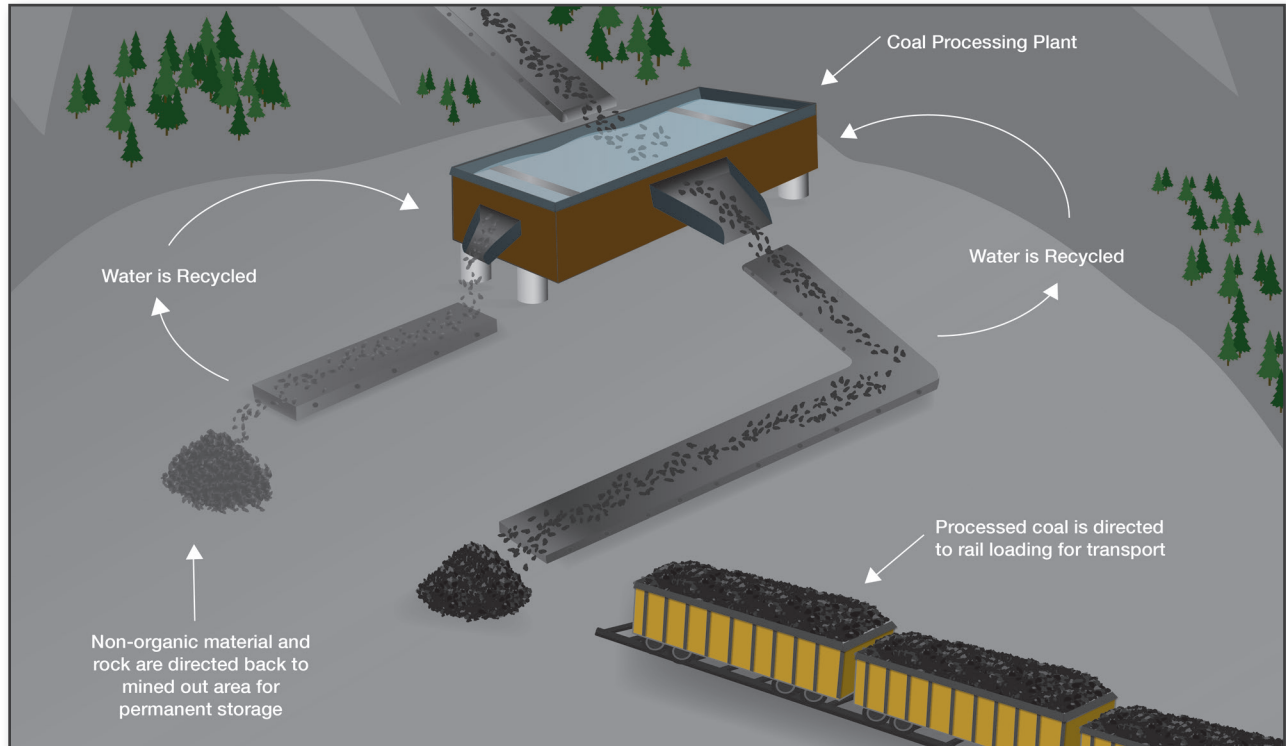
Passive, in-situ treatment processes create environments that convert dissolved selenium into its solid mineral form where it attaches to the waste rock and remains buried indefinitely in the final rehabilitated landform.

Active treatment involves established water treatment processes to ensure any residual selenium is below legislated water quality guidelines prior to release.

Existing environmental legislation prohibits the release of substances that would impact the environment, including possible impacts to wildlife.

WATER USE IN THE COAL INDUSTRY

When coal is mined, the raw coal contains non-organic material and rock. These must be removed prior to transportation to end use markets. Water is used to process the raw coal. In simple terms, coal “floats” and all other material “sinks”.

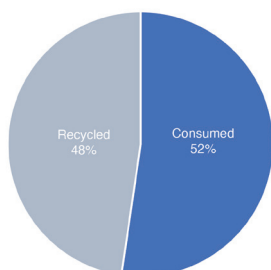


WATER RECYCLING IN THE COAL INDUSTRY

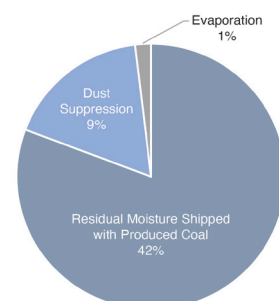
The mining industry takes its commitment to water conservation very seriously, and recycles the water used for processing. A typical and modern coal processing operation will recycle approximately half of its overall water requirements. Water that is not recycled is consumed in the following ways:

- Residual moisture shipped with the processed coal.
- Dust suppression.
- Evaporation

Recycling vs. Consumption
Based on Total Annual Water Requirements



Use of Water
that is not Recycled



WATER MANAGEMENT

Water allocations and use of water is strictly and aggressively managed by Alberta's regulators.

Alberta's water priority system ensures availability for downstream users. The licenses of municipalities, ranchers, and farmers always have priority and ensure existing users will always have access to their water allocation.

Water used in mining is commonly diverted from licenced sources to an onsite storage pond. Licenced sources could include a local water body or treated groundwater released by mining operations. The use of storage ponds allows water to be collected during periods of higher water flows and used during periods of lower flows. This is important in managing water supplies during the four distinct seasons of the year in Alberta.

Recycling of water used in coal processing further reduces overall requirements, while ensuring that any water that comes into contact with mining operations is properly captured and treated prior to reuse or release.

